

**Notice of Allowability**

Application No.

09/247,816

Examiner

Huedung X. Cao

Applicant(s)

DORBIE, ANGUS

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment, filed on 06/16/04.
2. ☒ The allowed claim(s) is/are 11 and 14-28.
3. ☒ The drawings filed on 09 February 1999 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

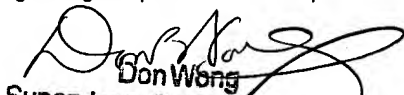
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
Don Wong  
Supervisory Patent Examiner  
Technology Center 2800

***Examiner's Statement of Reasons for Allowance***

1. Claims 11, 14-28 are allowed.

2. The following is an examiner's statement of reasons for allowance:

The prior art made of record fails to anticipate or make obvious the claimed invention. Specifically, the prior art fails to teach, in combination with the remaining elements as recited in claims 11, 14, 17, 18, 21, 24, and 25:

The present invention is directed to a method and apparatus for early culling of occluded objects.

Regarding claims 11, 14, 17, 18, 21, 24, and 25 Prior Arts fail to specifically teach that a transformation stage for transformation of graphics data from object space coordinates into eye-space coordinates, performing requested lighting operation, clipping the transformed data in clip-space, and projecting resulting coordinates into window-space; rendering the objects whose surrogate volume has a depth value closer to the eye than the depth value of the tile including the surrogate volume or equidistant to the eye with the depth value of the tile including the surrogate volumes; wherein each coarse Z-buffer is replicated one or more times at different resolutions, each separate coarse Z-buffer spans the image using a different resolution, the number of tiles in the coarse Z-buffers of various resolutions remains constant, for lower resolution coarse Z- buffers, each tile covers a larger area of the image, for lower resolution coarse Z-buffers, the tiles overlap one another, center points of successive resolutions of tiles of the coarse Z-buffers are offset from the center points of preceding resolution

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of tiles; constructing a surrogate volume for each object of the image, wherein each surrogate volume is a three-dimensional object that is just large enough to contain the object being ordered and wherein each surrogate volume may span only one tile of an appropriate resolution.

Claims 15-16 are allowed for depending on claim 14.

Claims 19-20 are allowed for depending on claim 17.

Claims 22-23 are allowed for depending on claim 21.

Claims 27-28 are allowed for depending on claim 26.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


***Inquires***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Cao  
Patent Examiner

  
Don Wong  
Supervisory Patent Examiner  
Technology Center 2800